USING THE BOUNDARY DROP SYSTEM BETWEEN MULTIPLE DEPARTMENTS

STRATEGIC MANAGEMENT OF CHANGE

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ABSTRACT

Three fire departments having common boundaries sought to improve response times to incidents within their jurisdictions without adding manpower, stations or apparatus and possibly eliminate duplicate apparatus. The purpose of this research project was to study the of concept of ignoring the common political boundaries between the City of Balch Springs, the City of Dallas and unincorporated Dallas County when assigning apparatus to respond to incidents as a solution to this problem. The three departments consisted of a large metropolitan, a single station full paid and an all volunteer department. All three departments were already participating in a long-standing countywide mutual aid agreement.

Evaluative research was used to determine what time saving could be achieved by responding the closest apparatus to an incident regardless of jurisdiction, what legal and compatibility problems the departments would have to address and what apparatus would be rendered a duplication and could be eliminated. Procedures used included the research of fire service textbooks, technical handbooks, and personal communication with local government officials, and personal research.

Personal research involved an analysis of departmental records and a study of the response times to selected locations within the three jurisdictions. Personal research also included visits to the communications centers of each of the program participants. Personal visits were also made to each of the fire stations that would participate in the proposed agreement to determine an apparatus and equipment inventory.

The conclusions indicated that an agreement to drop the political boundaries and respond the closest apparatus regardless of the department would benefit all three jurisdictions. A comprehensive document approved by all the participating jurisdictions should be completed. Benefits included reduced response times, standardization of

procedures and equipment and a list of duplicate apparatus that could be eliminated from the department inventory.

The recommendation was for the three jurisdictions to create a formal plan to respond the closest apparatus to incidents regardless of jurisdiction and enter into a written agreement.

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INTRODUCTION

The area encompassed by the City of Balch Springs, the southern portions of the City of Mesquite, the southeastern portion of the City of Dallas and the unincorporated portion of southeast Dallas County has experienced little growth in the past 10 years (Richard Boyd, personal communication, May 4th, 1999).

William Macdonald, the City Manager of Balch Springs, said local governments are constantly under pressure to provide improved service while holding costs at current levels, even in the face of inflation. For governments of smaller municipalities in which there is little room for growth this may be especially difficult. At the same time residents are demanding that the cities budget be maintained at current levels or reduced. This pressure has required local fire departments to seek improved methods of service delivery (William Macdonald, personal communication, May 5th, 1999).

The purpose of this research paper is to determine if a policy of dispatching the closest apparatus to an incident between the fire departments of the Cities of Balch Springs and Dallas and Dallas County, Texas would be an effective method of improving response times and eliminate duplicate apparatus. The concept would be an enhancement to an existing mutual aid plan and is called a boundary drop policy. A boundary drop policy requires sending the closest apparatus to an incident regardless of jurisdiction. On incidents where a single piece of apparatus is assigned to an incident in another jurisdiction the policy may result in apparatus from a neighboring jurisdiction attending to the incident with the apparatus from the jurisdiction in which the incident occurred never responding. The purpose is also to determine if the policy could be implemented without requiring additional funding and possibly reduce apparatus inventory by eliminating any duplication of existing resources.

Evaluative research techniques were employed to gather information for this study. The fire department records of the participating cities were studied, personal

interviews conducted, and independent research completed. The independent research involved studying the travel distance of apparatus from the various stations to selected locations in the City of Balch Springs. The fire incident reports of each department were studied for historical response times. By visiting the neighboring fire stations of each of the fire departments that would be participating in the proposed agreement, an inventory of existing apparatus and equipment was compiled. A personal study of radio communications capability was also conducted. Visits were made to the communications centers of the proposed jurisdictions and to the commercial Telephone Company to determine landline communications capabilities. These techniques were used to answer the following questions:

1. Would eliminating the political boundaries of the participating jurisdictions improve service when assigning apparatus to respond to an incident?
2. What legal and compatibility considerations would have to be overcome when implementing the boundary drop concept between multiple departments?
3. What apparatus would be a duplication of inventory after a boundary drop policy was implemented and thus could be could be eliminated?

BACKGROUND AND SIGNIFICANCE

During periods of rapid expansion many municipalities are unable to provide optimum emergency service to outlying regions of their governmental jurisdictions. In order to provide effective levels of service to such areas, it may be necessary to obtain assistance from contiguous municipalities which have emergency services resources located in closer proximity to the affected areas (City of Dallas Fire Department [DFD], 1995).

According to Hawkins and McClees (1988) fire departments must be able to respond in a timely manner in order to provide maximum service to the residents of the community within the resources allotted. Growth usually occurs faster than funding becomes available for expanding service levels within a particular city. The sharing of resources between cities could be a method of offsetting a service deficit (DFD, 1995).

According to Balch Springs City Manager William Macdonald, the City of Balch Springs is a suburban community composed of primarily single family residences with some retail areas. This provides for revenue based on homeowner ad valorum property tax and returns from retail sales tax generated by businesses and stores. While growth has been slow over the last decade, the economy is set for a period of rapid expansion. Several large construction projects are scheduled to begin over the next fiscal year. The city has an area of 9.2 square miles and a current population of 20,000. The city has one fire station.

Mr. Macdonald further related the citizens have recently expressed a growing concern over the response time of emergency equipment, especially in the fringe areas of the city. The recent change from the old Texas Key Rating system of calculating insurance premiums to the Insurance Services Office (ISO) method of has resulted in large increases in insurance premiums. Three fire stations would be needed to serve the community when it reaches its maximum buildout (Hickey, 1993). It is anticipated that it may be 15 years or longer before the city will be able to build and staff at the level of protection required by ISO. During this period many residents who are already concerned about long response times and sharp increases in insurance premiums are demanding that this situation be addressed by the fire department now (William Macdonald, personal communication, May 5th, 1999).

An interview with the City of Balch Springs Community Development Director Richard Boyd indicates that this area will continue to see a slow population growth over

the foreseeable future. While residential growth has been stagnant over the last ten years, there is the potential for rapid building along the interstate highway areas of the city. The State of Texas Department of Transportation is improving the interstate highway corridor by adding service roads. Commercial building projects such as a large truck stop with a motel, three separate motel projects and two home improvement warehouses are currently in the planning stages. In addition, the neighboring city to the north has recently finished building out along its interstate corridor. Future building along the highway will have to be further south, in the city of Balch Springs (Richard Boyd, personal communication, August 24, 1998).

An automatic assistance agreement incorporating a boundary drop policy has improved response times in other fire departments. Future growth can then be dealt with in a timely manner and necessary increases in infrastructure added over a period of several fiscal years (Bass, 1999). The policy has also been used on a widespread basis over large areas involving many fire departments (Lakes Regional Mutual Aid Fire Association [LRMAFA], 1998). This will satisfy the requirements of ISO and cut response times without requiring the addition of resources to any of the participants (Hickey, 1993).

Balch Springs Mayor J. C. Watkins said an immediate method must be found that will provide shorter response times in emergencies to fringe areas of the city without requiring additional resources. One of the campaign issues in the last election was to reduce the city budget. The newly elected city council members may cut the existing budget from its current levels.

LITERATURE REVIEW

According to Hawkins and McClees (1988), mutual assistance between fire departments usually takes one of two forms. The first and most common is a written

agreement among two or more departments to respond to formal requests for assistance under specific conditions. This form is called mutual aid. This procedure requires the arrival of the primary provider, a determination to be made of the situation and a subsequent call made for assistance from other agencies. Mutual aid does not improve response times.

The second form is an automatic assistance agreement. This form outlines by prior arrangement procedures for dispatchers to send the nearest available unit automatically. The home department does not wait to arrive at the scene before requesting assistance (DFD, 1995).

An enhancement of automatic assistance is adopting a policy of dropping, or ignoring, the political boundaries of the participating departments when assigning apparatus to respond to incidents. In effect, this policy means a neighboring jurisdiction first due area will extend into another jurisdiction. Some departments use the boundary drop policy added to an automatic assistance agreement on initial response (DFD, 1995).

Even very large metropolitan cities are making increased use of both their own regularly assigned apparatus and automatic assistance with a boundary drop policy (DFD, 1995). This is often more efficient because stations from neighboring fire departments may be much nearer to an incident than some of the home fire stations (DFD, 1995). In cases where several fire departments occupy adjacent or contiguous territories, there should be arrangements made for joint response to high-risk hazards and for assistance in occupying vacated fire stations at times of major fires (National Fire Protection Association [NFPA], 1991a).

The use of the boundary drop system is used by agencies participating in an automatic assistance agreement to further enhance their service delivery. The City of

Marietta and the government of Cobb County, Georgia have such an agreement. The Cobb County Fire Department radio communications center dispatches for both agencies. The two fire departments respond to a combined 50,000 calls a year. The average response time for both fire departments is less than four minutes to all incidents (Bass, 1999).

The use of automatic assistance can be over a widespread area. The Lakes Regional Mutual Aid Fire Association, based in Laconia, New Hampshire, oversees an automatic assistance organization that is comprised of 35 cities covering a 1,500 square mile area. A Board of Governors supervises the administration of the operation. Radio dispatch for all participating fire departments is provided through a centrally located facility (LRMAFA, 1998).

Use of automatic assistance using the boundary drop policy is not limited to city or county governments. The Boise City (Idaho) Fire Department has an automatic assistance agreement with the Federal Governments Bureau of Land Management for fire responses into the national forest located near that city. The Federal Government apparatus is located miles further away than the Boise City stations (Boise City Fire Department [BCFD], 1998).

Insurance companies know their clients are better protected when there are additional written assurances of a prompt response by fire protection forces and give discounts for policyholders protected by fire departments having automatic assistance agreements with their surrounding departments (State Farm Fire & Casualty Company, 1997).

In summary, the review of the literature suggests enhancing an automatic assistance agreement with a boundary drop policy is a workable solution to shorten response times for departments of all sizes. There are legal and political considerations

because a neighboring jurisdiction may take action in another jurisdiction with the home jurisdiction not present to oversee the action. Several other issues must be considered including equipment compatibility. However, the mutual and automatic assistance concept has been practiced in the United States for over 200 years and in some cases, departments could not provide a reasonable level of protection without it (Carter & Rausch, 1989).

PROCEDURES

Definition of Terms

Automatic assistance. Assistance is rendered by the fire department to another jurisdiction by prior arrangement. Dispatch of designated emergency apparatus is automatically provided under an automatic assistance agreement. When implemented, such agreements provide a methodology for standardization of operating procedures in designated response areas. The home jurisdiction also responds (DFD, 1995).

Boundary drop policy. Refers to the procedure of dispatching the closest fire apparatus to an incident, regardless of the jurisdiction in which the incident occurs. The department responding to an incident may attend to an emergency incident in another jurisdiction and return to its own jurisdiction without the home department ever responding. The responding jurisdiction, in effect, acquires a geographical area of responsibility in addition to its own (Dallas County Fire Chiefs Association [DCFCA], 1984).

Mutual aid. Emergency assistance is rendered from one agency to another. The aid must be requested before assistance is sent. The home jurisdiction responds first and requests additional assistance after arrival. Mutual aid has no impact upon response time (DFD, 1995).

Research Methodology

The research information used for this study included printed literature, personal research, and interviews. The interviews were conducted both in person and by telephone. The literature included textbooks, technical handbooks, brochures and handouts. Existing mutual aid and automatic assistance contracts in use by both small and large metropolitan fire departments were examined. Personal research included a review of a response time study of the routes that would be taken by apparatus to selected locations within the City of Balch Springs.

The training and standard operating procedures manuals of each of the potential jurisdictions were reviewed to determine the procedure of the fireground evolutions and command procedures to be used by the participating jurisdictions. The evolutions and procedures were compared between departments to determine the degree of compatibility.

Personal visits were also made to the concerned fire stations to determine a current apparatus inventory and determine the type of equipment carried on each piece apparatus. The lists of equipment carried on each fire truck in each of the stations were compared between the stations of all three jurisdictions to determine the degree of compatibility of adapters and fittings between jurisdictions. Sizes and use of fire hose was compared as well as the size and thread type on each of the fire apparatus to determine compatibility. This list was also used to determine if any apparatus would become a duplication if a boundary drop policy were implemented between the jurisdictions.

A study was conducted of the type, band and frequencies of radio communication equipment used and carried by apparatus of the various jurisdictions. The study was used to determine what communication compatibility capabilities each

apparatus had in each of the jurisdictions.

The current communications capability of each of the dispatch centers of each of the jurisdictions was also studied to determine the communication capability between centers. Personal visits were made to the commercial Telephone Company to determine the technical capability for communication between dispatch centers.

The printed literature utilized in this study included information on mutual aid and automatic assistance provided by several agencies and companies in the form of brochures and booklets. The literature included printed matter intended as management reference handbooks and used as textbooks in many fire science courses. All the books contained information on mutual and automatic assistance. The books included the *Fire Protection Handbook*, seventeenth edition, published by the National Fire Protection Association, *Managing Fire Services*, second edition, published by the International City Management Association, and *Fireground Tactics*, written by Emanuel Fried.

Personal research included the gathering of information concerning statistical data on current population and buildings. Future growth projections in the City of Balch Springs were also studied. This information was supplied by the Community Development Department of the City of Balch Springs.

A personal review was done of the City of Balch Springs municipal records regarding distances to selected locations. These locations were intersections of through streets that represented all portions of the city. Information was collected from a comprehensive apparatus travel and response time study that was conducted by the Balch Springs Fire Department in 1998. The study included response distances from the closest City of Dallas fire stations.

During the study, fire department vehicles drove streets in the proposed area along which they would respond. The distance to each major intersection from each of

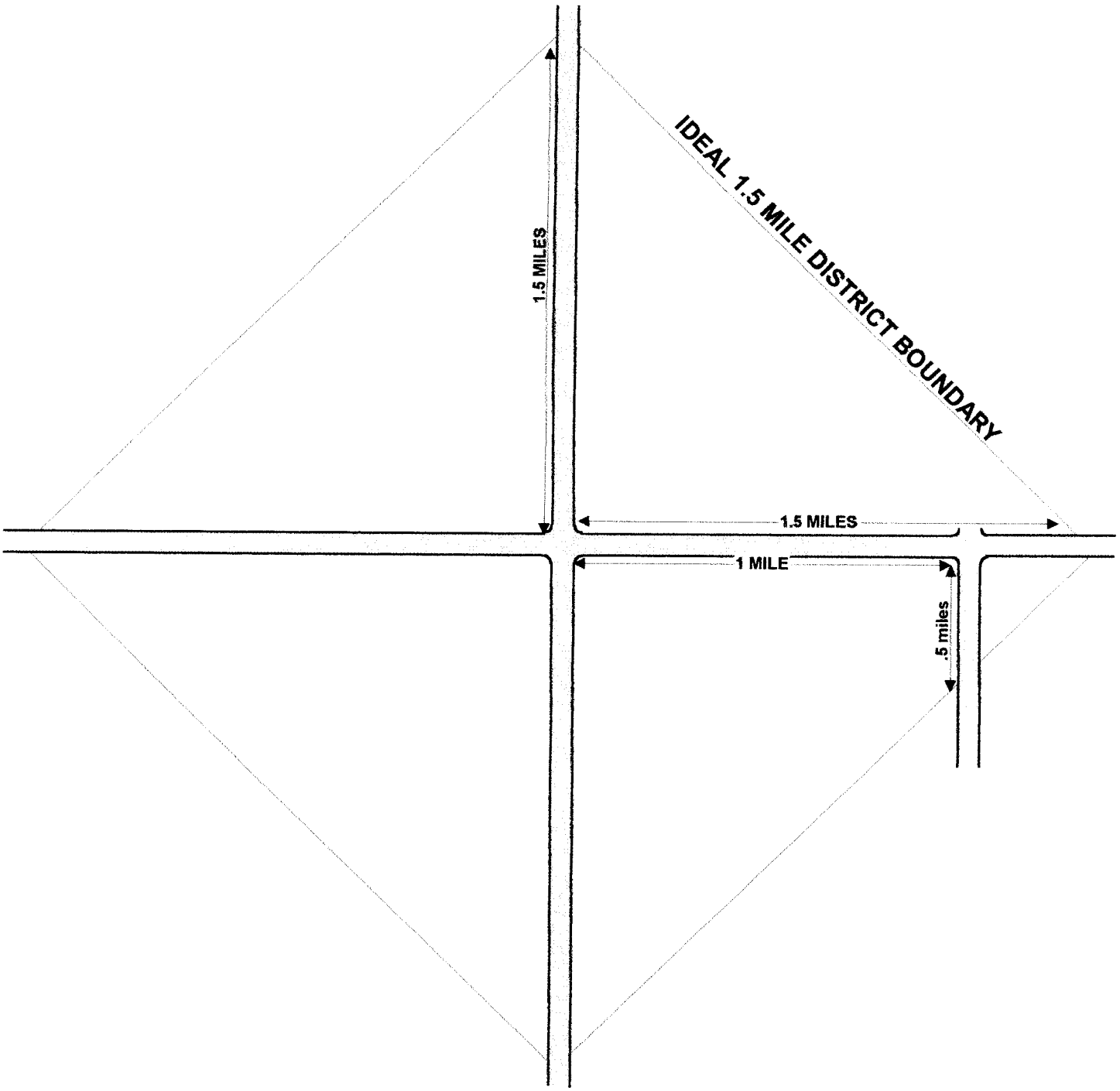
the fire stations was recorded and the data entered on a study map. The map was then used to calculate the approximate response time to the selected intersections of the proposed area. The response distances were converted to time data using a 30-mile per hour average for conversion. The method used to calculate mileage's limited travel to through streets, with apparatus traveling in a straight line as far as possible and the actual odometer mileage recorded. The straight-line method used to calculate the mileage is illustrated in drawings one and two on pages 15 and 16.

A similar distance and time study was conducted for the Dallas County fire station and those results merged with the Balch Springs Fire Department time study of the City of Dallas stations conducted in 1998.

It was anticipated there might be concern among the line firefighters because a very large metropolitan department would be responding with a small single station department. Also, two full-paid departments would be responding with an all volunteer department. Interviews were conducted with officials from Dallas and Dallas County Fire Departments to explore these issues. Candid interviews with labor union officials from both paid departments were also conducted.

Because another agency would become responsible for a portion of the City of Balch Springs, with no apparatus or personnel from Balch Springs attending, concern by the public and elected officials was anticipated. A presentation was made to the Mayor and full City Council of the City of Balch Springs at a regular City Council meeting to inform the elected officials and the public of the concept. The issues raised by Council and the public at the meeting was used to help formulate the recommendations of this paper.

DRAWING 1


1.5 MILES
IDEAL 1.5 MILE DISTRICT BOUNDARY
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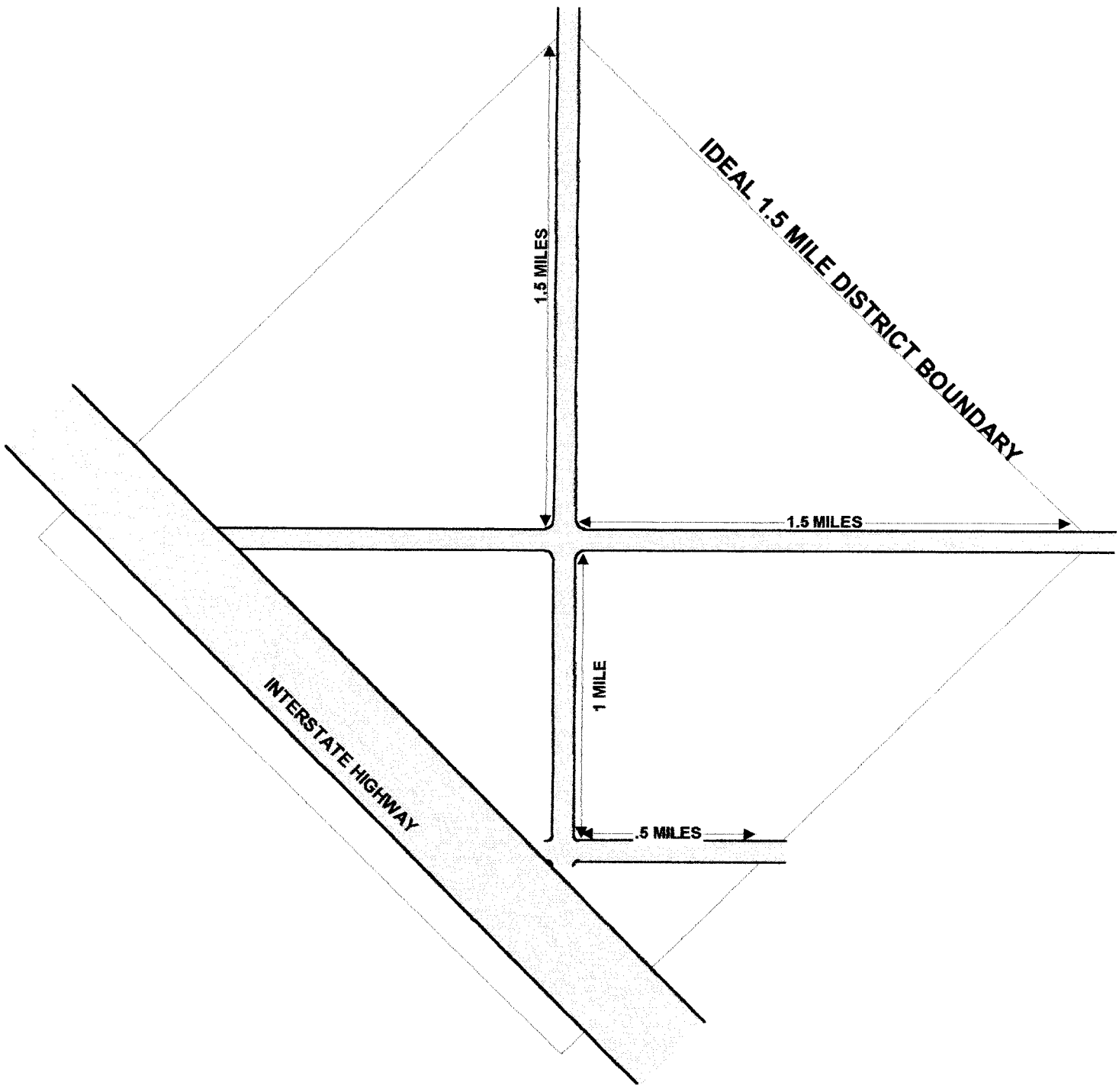
DRAWING 2


IDEAL 1.5 MILE DISTRICT BOUNDARY
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INTERSTATE HIGHWAY

Assumptions and Limitations

The study was limited to the impact on the City of Balch Springs. The study considered only what implications a boundary drop agreement would have if implemented between the City of Balch Springs and the other two fire departments. The study did not review any impact an agreement would have if implemented between the other two fire departments without involving the City of Balch Springs. The study did not consider any specific impact between the other two potential participants alone with Balch Springs participating as a third jurisdiction.

The apparatus response and travel time study conducted had several assumptions. The estimated response time was based on an assumed response for the City of Dallas Fire Department from stations 5, 9 and 51 and from Dallas County Fire Department Station 1. These are the closest neighboring stations. The City of Dallas Fire Department has 53 fire stations. The Dallas County Fire Department has one station. Any or all of the studied stations could be already assigned to other emergency incidents at the time a request for assistance is generated by the Balch Springs Fire Department. Apparatus assigned to respond into the City of Balch Springs by the other jurisdictions could be from stations other than those studied.

Apparatus speed responding to emergencies was estimated to be 30 miles per hour on average. This estimate was concluded from a review of a segment of incident reports by Balch Spring's apparatus to locations at a known distance from the fire station. ISO allows for two minutes per mile traveled to reach a subject building when that organization studies a city (Hickey, 1993). Therefore, the study would coincide with any future ISO rating study. Actual response times to incidents would vary. The apparatus assigned to respond into the City of Balch Springs might begin their response from a location other than their normally assigned fire station. Other environmental conditions such as nighttime, inclement weather, or road repairs in progress would

cause additional variables.

Only the fire service portion of each fire department was studied. Each of the three departments provides emergency medical service to their residents. The medical service was not considered as a part of this paper.

An unusual situation exists between the City of Balch Springs and the Dallas County Fire Department. The Dallas County Fire Department serves all unincorporated portions of Dallas County from one fire station. Some of those unincorporated portions are 10-15 miles from their station. The City of Balch Springs is closer to some portions of unincorporated Dallas County than the Dallas County Fire Department is when responding from their station. No part of the City of Balch Springs is closer to the Dallas County fire station. Dallas County has an all volunteer department and does not maintain members on duty at the fire station at all time. While the Balch Springs Fire Department can respond into parts of unincorporated Dallas County faster than the Dallas County Fire Department, there can be no similar apparatus response reciprocity on behalf of the City of Balch Springs by the Dallas County Fire Department.

The Dallas County fire station is physically located inside the city limits of the City of Dallas and only one block from the Dallas Fire Department Station 9. Dallas Fire Department Station 9 is one of the stations included in this study. The option of closing the Dallas County Fire Department station and relocating it to a more advantageous location was not fiscally or politically possible. To allow the Dallas County Fire Department to reciprocate with City of Balch Springs in the boundary drop policy, allowances had to be made for this situation when conducting the study and the recommendations are based on these facts.

RESULTS

The distance study indicates the response times from the fire station in the City of Balch Springs would range from four to thirteen minutes. In the southern areas of the City of Balch Springs the longest response times ranged from eight to thirteen minutes from the Balch Springs Fire Department station. An automatic aid agreement with a boundary drop policy would reduce the response time of the first due apparatus into this area by four to seven minutes.

City of Dallas Fire Department Stations 5 and 51 could reach the western portions of the City of Balch Springs quicker than Balch Springs Fire Department apparatus responding from their own station. The response times would be shortened by as much as five minutes in the northwest portion of the City of Balch Springs. The City of Dallas Fire Station 5 is only one mile from the city limits of Balch Springs while the same location is 4.2 miles from the City of Balch Springs fire station.

Portions of unincorporated Dallas County are contained entirely within and surrounded by the city limits of Balch Springs and still other unincorporated portions of Dallas County are considerably closer to the Balch Springs fire station than to the Dallas County fire station. No portion of the City of Balch Springs is closer to the Dallas County fire station. Dallas County would benefit from a reduction in response times of up to ten minutes if Balch Springs Fire Department apparatus were sent first. The Dallas County Fire Department has some equipment, such as hazardous materials team with appropriate vehicles, and provides some other services that the Balch Springs Fire Department does not provide to its own residents.

The equipment carried and used by the Balch Springs, Dallas and Dallas County Fire Departments was found to be compatible in critical areas. The departments all use five-inch hydrant to pump supply hose with Stortz couplings and have National Standard

threads on all other hose couplings. All pumping engines have the same size intake valves and thread type. All adapters and fittings have the same thread types. The hydrants in all three jurisdictions have the same size outlets and have the same thread type.

All three departments use a substantially common terminology for radio transmissions and command functions. All three jurisdictions are long time participants in a countywide mutual aid plan that has been used many times. All three departments have worked together on mutual aid incidents hundreds of times.

Radio equipment was found to be incompatible between the three departments. The Balch Springs and Dallas County Fire Departments each have the others radio frequencies already installed in their apparatus radios. The Dallas Fire Department operates in a different spectrum band. The Dallas Fire Department apparatus cannot communicate with Balch Springs or Dallas County Fire Department apparatus. It is technically impossible for one apparatus radio to contain a frequency common to all three departments.

All three potential jurisdictions use Enhanced 911. Enhanced 911 technology routes the caller to the dispatch center based on the geographical location from which the telephone call is being placed. All three jurisdictions have the capability of transferring callers to each of the other jurisdictions.

The inventory of apparatus types revealed a shortage of some vehicles and a duplication of others at the stations studied. The Balch Springs Fire Department has the only ladder truck and the only rescue vehicle. The Dallas County Fire Department has the only tanker truck. The Balch Springs Fire station, Dallas Fire Department Station 9 and Dallas County Station 1 all have brush fire trucks. The City of Dallas Station 9 and the Dallas County station are located one block apart on the same road.

DISCUSSION

The capability of the primary jurisdiction to respond to an emergency has a direct effect on the outcome and terminal severity of the incident (Carter & Rausch, 1989). Carter and Rausch also offer this goal can not be achieved in most cities due to normal conditions such as financial constraints or growing municipalities where the needed number and distribution of fire stations has not yet been achieved. Where these circumstances exist, fire departments must find alternate methods of reducing response times to the shortest possible time utilizing all available resources.

The results of the research indicated that the implementation of a boundary drop agreement to respond the closest apparatus to an incident regardless of jurisdiction between the Cities of Balch Springs, Dallas and Dallas County would reduced response times in those areas along the common boundaries. The research also identified some additional benefits that should occur after implementation of the agreement.

A reduction in travel time would not be the only benefit. A boundary drop policy has the distinct advantage over mutual and pure automatic aid of reducing the delay for additional apparatus to respond. In addition, since it is practiced as part of a routine, both command and operational personnel gain the necessary experience and confidence to use it to the utmost advantage in a major emergency (Hawkins & McClees, 1988). This method is the most effective because the departments work together on an assigned automatic response. This has a distinct advantage in that they respond more frequently and are used to working together (Fried, 1971).

Mutual and automatic assistance has some problems. When implementing a boundary drop policy, those problems could multiply. There is the question of who assumes command and who would assume the legal responsibility for the actions of personnel operating outside of their home jurisdiction (Fried, 1971). There may be a lack of communication between operating units and between operating units and

command posts. Another complicating factor is the difference in hose and hydrant threads and the need for adapters. Any mutual aid plan also should include provisions for standard operating procedures, interdepartmental communications, common terminology, maps, adapters, and other considerations that directly affect a department's ability to cooperate effectively (Fried, 1971).

Command responsibility, jurisdictional questions, insurance coverage, and legal constraints should be covered in written agreements supported by enabling legislation to properly establish mutual aid systems for the participating departments (National Fire Protection Association [NFPA], 1991c).

A critical factor in the evaluation of public fire protection is time. It is generally considered that the first arriving fire apparatus should be at the emergency scene within five minutes of the sounding of the alarm. The first five minutes of any fire is the determining factor as to whether the fire will remain a small fire or becomes a larger fire (National Association of Fire Protection [NFPA], 1991b).

A boundary drop policy can provide a reduction in response times. This reduction can help prevent small fires from becoming conflagrations (Kimball, 1968). Departments will have the opportunity to work together more often under a boundary drop policy versus mutual aid arrangements. The more often fire departments work together the more efficient they will become working as one department on large incidents. This teamwork can be critical when working to control large emergencies (Coleman, 1978).

With these advantages in increased efficiency, there are other areas that must be addressed when implementing a boundary drop policy as a response plan. Some of these areas should include command responsibility, communications compatibility, fireground procedures, and equipment compatibility (Carter & Rausch, 1989). The majority of these problems will be avoided through planning when writing the boundary drop policy. A boundary drop policy is a concept that only works if it is legally

empowered. In lieu of an automatic assistance agreement, any mutual aid working relationship should also address these areas before departments discover them on the fireground (Coleman, 1978).

Carter and Rausch (1989) say a personnel problem may arise when a large city enters into an agreement with a small adjacent city. The members of the larger departments may have an extensive amount of experience when compared to the members of the smaller department. To avoid any doubts as to capability on the fireground, the requirement for joint training between the participating departments should be implemented before the automatic aid plan is begun. The members of the participating departments that will be working together on the fireground will normally be the same group of people since the working shifts of fire departments in a given area of municipalities usually have same sequence of rotation (Carter & Rausch, 1989).

Additional consideration will have to be given when an agreement is to be drawn up between a full paid department and an all-volunteer department. The all volunteer department may not have members on duty at the fire station at all times. This will have an adverse impact on response times.

Automatic aid agreements will require adjustments from all participating departments. These adjustments are normally minimal. In spite of these, the departments will be provided the opportunity to learn from each other. More importantly, the departments will have a better method of service delivery to their cities (Fried, 1971).

RECOMMENDATIONS

The Cities of Balch Springs and Dallas and Dallas County each have the ability to improve service delivery to their areas to varying degrees with all three jurisdictions benefiting from the arrangement. This improvement should be able to be achieved

within the existing fiscal constraints of each department.

The three agencies should create an automatic assistance plan that includes a boundary drop policy. This plan should include a written agreement approved by the respective agencies. The written agreement needs to address command responsibility, communications compatibility, fireground procedures, jurisdictional questions, insurance coverage, and other legal considerations as each of the respective cities may require (Carter & Rausch, 1989).

A joint training program should be developed. The training program should include several identified areas at the outset so the plan will function smoothly after it is activated. Command responsibility identified in the agreement should be explained to personnel (DFD, 1995). Standard operating procedures should be written, explained, and practiced by the participating jurisdictions on a regular schedule. Training should be conducted on any differences in equipment and compatibility of equipment assured.

Joint communication procedures and terminology should be standardized. A method for all jurisdictions to have radio communications capability should be developed. Portable radios should be used to solve this problem in an economical way.

The written agreement should be submitted to the legal staff of the participating cities for review. This is required to ensure that the document meets all requirements for a contract between the local government agencies involved. It will also insure the legal needs of each city is met and provide a method for checking of the agreement to insure that it has covered the necessary topics for the agreement to be implemented and function properly. An agreement that has been in place in another jurisdiction should serve as a model for this document.

The automatic assistance plan with the boundary drop policy should be used to allow the maximum use of a particular type of apparatus by the different agencies. Those types of vehicles should be used by the participating departments to the best

tactical advantage all three jurisdictions. The completed agreement, once in place and activated, should be used to coordinate the future purchase and station assignment of different types of apparatus. The different jurisdictions should consult with each other before acquiring apparatus to take advantage of vehicles that are already stationed within the topic area. Duplicate apparatus present when the plan is activated should be relocated elsewhere or eliminated from the inventory.

The study revealed that the Dallas County Fire Department can not respond into any portion of the City of Balch Springs faster than the City of Balch Spring's own department. The Balch Springs Fire Department can respond into some portions of unincorporated Dallas County faster than the Dallas County Fire Department. The Dallas County Fire Department has a hazardous materials team and vehicle while the Balch Springs Fire Department does not. The Dallas County Fire Department has a tanker truck while the Balch Springs Fire Department does not. The Dallas County Fire Department should return the service provided by Balch Springs to the county unincorporated area by providing a response to hazardous materials incidents occurring inside the City of Balch Springs and offer other functions, such as providing a tanker truck at brush fires, not already provided by the City of Balch Springs Fire Department.

In conclusion, an automatic assistance agreement with a boundary drop policy between the Cities of Balch Springs and Dallas and Dallas County will be valuable to each respective department in improving the service that each provides to its own jurisdiction. It is a primary requirement the policy be supported by a written document. Each department must be thoroughly familiar with all aspects of the plan.

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